

PRELIMINARY AMENDMENT
Appln. No.: Unassigned (371 of PCT/JP03/11118)

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) A gene detection method comprising detecting one or more gene polymorphisms selected from the group consisting of the below-described gene polymorphisms ~~(a)1~~ through ~~(m)13~~, to thereby detect an allergic predisposition of a subject:

~~(a)1~~: a polymorphism of an interleukin 12 receptor β 2 chain gene specified by mutation of a region encoding position 313 arginine of an interleukin 12 receptor β 2 chain protein encoded by the gene;

~~(b)2~~: a polymorphism of an interleukin 12 receptor β 2 chain gene specified by mutation of a region encoding position 604 alanine of an interleukin 12 receptor β 2 chain protein encoded by the gene;

~~(c)3~~: a polymorphism of an interleukin 12 receptor β 2 chain gene specified by lack of a region encoding position 619 glycine and subsequent amino acid residues of an interleukin 12 receptor β 2 chain protein encoded by the gene;

~~(d)[[4.]]~~ a polymorphism of an interleukin 12 receptor β 2 chain gene specified by mutation of a region encoding position 720 histidine of an interleukin 12 receptor β 2 chain protein encoded by the gene;

~~(e)5~~: a polymorphism of an interleukin 12 receptor β 1 chain gene specified by mutation of a region encoding position 361 arginine of an interleukin 12 receptor β 1 chain protein encoded by the gene;

~~(f)6~~: a polymorphism of an interleukin 12 receptor β 1 chain gene specified by mutation of a region encoding position 365 methionine of an interleukin 12 receptor β 1 chain protein encoded by the gene;

~~(g)7~~: a polymorphism of an interleukin 12 receptor β 1 chain gene specified by mutation of a region encoding position 378 glycine of an interleukin 12 receptor β 1 chain protein encoded by the gene;

~~(h)8~~: a polymorphism of an interleukin 18 receptor α chain gene specified by lack of position 317 alanine of an interleukin 18 receptor α chain protein encoded by the gene;

~~(i)9~~: a polymorphism of an interferon γ receptor 1 chain gene specified by mutation of a region encoding position 467 leucine of an interferon γ receptor 1 chain protein encoded by the gene;

~~(j)10~~: a polymorphism of an interleukin 12•p40 subunit gene specified by substitution of position 3,696 guanine by another base, the guanine being in intron 1 of the gene;

~~(k)11~~: a polymorphism of an interleukin 12•p40 subunit gene specified by substitution of position 3,757 cytosine by another base, the cytosine being in intron 1 of the gene;

~~(l)12~~: a polymorphism of an interleukin 12•p40 subunit gene specified by substitution of position 12,359 thymine by another base, the thymine being in intron 4 of the gene; and

~~(m)13~~: a polymorphism of an interleukin 12•p40 subunit gene specified by substitution of position 16,078 cytosine by another base, the cytosine being in intron 6 of the gene.

2. (currently amended) The gene detection method according to claim 1, wherein said gene polymorphism (a)~~1~~, which is specified by mutation of a region encoding position 313 arginine of an interleukin 12 receptor β 2 chain protein encoded by an interleukin 12 receptor β 2 chain gene, is specified such that the position 937 polymorphic base of the interleukin 12 receptor β 2 chain gene is guanine, and the position 313 polymorphic amino acid residue of the interleukin 12 receptor β 2 chain protein is glycine.

3. (currently amended) The gene detection method according to claim 1 ~~or 2~~, wherein said gene polymorphism (b)~~2~~, which is specified by mutation of a region encoding position 604 alanine of an interleukin 12 receptor β 2 chain protein encoded by an interleukin 12 receptor β 2 chain gene, is specified such that the position 1,811 polymorphic base of the interleukin 12 receptor β 2 chain gene is thymine, and the position 604 polymorphic amino acid residue of the interleukin 12 receptor β 2 chain protein is valine.

4. (currently amended) The gene detection method according to claim 1 ~~any of claims 1 through 3~~, wherein said gene polymorphism (c)~~3~~, which is specified by lack of a region encoding position 619 glycine and subsequent amino acid residues of an interleukin 12 receptor β 2 chain protein encoded by an interleukin 12 receptor β 2 chain gene, is specified by lack of the bases at positions 1,856 to 1,946 of the interleukin 12 receptor β 2 chain gene.

5. (currently amended) The gene detection method according to claim 1 ~~any of claims 1 through 4~~, wherein said gene polymorphism (d)~~[[4]]~~, which is specified by mutation of a region encoding position 720 histidine of an interleukin 12 receptor β 2 chain protein encoded by an interleukin 12 receptor β 2 chain gene, is specified such that the position 2,159 polymorphic base of the interleukin 12 receptor β 2 chain gene is guanine, and the position 720 polymorphic amino acid residue of the interleukin 12 receptor β 2 chain protein is arginine.

6. (currently amended) The gene detection method according to claim 1 ~~any of claims 1 through 5~~, wherein said gene polymorphism (e) ~~5~~, which is specified by mutation of a region encoding position 361 arginine of an interleukin 12 receptor β 1 chain protein encoded by an interleukin 12 receptor β 1 chain gene, is specified such that the position 1,081 polymorphic base of the interleukin 12 receptor β 1 chain gene is thymine, and the position 361 polymorphic amino acid residue of the interleukin 12 receptor β 1 chain protein is tryptophan.

7. (currently amended) The gene detection method according to claim 1 ~~any of claims 1 through 6~~, wherein said gene polymorphism (f) ~~6~~, which is specified by mutation of a region encoding position 365 methionine of an interleukin 12 receptor β 1 chain protein encoded by an interleukin 12 receptor β 1 chain gene, is specified such that the position 1,094 polymorphic base of the interleukin 12 receptor β 1 chain gene is cytosine, and the position 365 polymorphic amino acid residue of the interleukin 12 receptor β 1 chain protein is threonine.

8. (currently amended) The gene detection method according to claim 1 ~~any of claims 1 through 7~~, wherein said gene polymorphism (g) ~~7~~, which is specified by mutation of a region encoding position 378 glycine of an interleukin 12 receptor β 1 chain protein encoded by an interleukin 12 receptor β 1 chain gene, is specified such that the position 1,132 polymorphic base of the interleukin 12 receptor β 1 chain gene is cytosine, and the position 378 polymorphic amino acid residue of the interleukin 12 receptor β 1 chain protein is arginine.

9. (currently amended) The gene detection method according to claim 1 ~~any of claims 1 through 8~~, wherein said gene polymorphism (h) ~~8~~, which is specified by lack of position 317 alanine of an interleukin 18 receptor α chain protein encoded by an interleukin

18 receptor α chain gene, is specified by lack of the bases at positions 950 to 952 of the interleukin 18 receptor α chain gene.

10. (currently amended) The gene detection method according to claim 1 ~~any of claims 1 through 9~~, wherein said gene polymorphism ~~(i)9~~ (j)9, which is specified by mutation of a region encoding position 467 leucine of an interferon γ receptor 1 chain protein encoded by an interferon γ receptor 1 chain gene, is specified such that the position 1,400 polymorphic base of the interferon γ receptor 1 chain gene is cytosine, and the position 467 polymorphic amino acid residue of the interferon γ receptor 1 chain protein is proline.

11. (currently amended) The gene detection method according to claim 1 ~~any of claims 1 through 10~~, wherein said gene polymorphism ~~(j)10~~ (i)10 is specified such that the position 3,696 polymorphic base of the interleukin 12•p40 subunit gene, which base is in intron 1 of the gene, is adenine.

12. (currently amended) The gene detection method according to claim 1 ~~any of claims 1 through 11~~, wherein said gene polymorphism ~~(k)11~~ (j)11 is specified such that the position 3,757 polymorphic base of the interleukin 12•p40 subunit gene, which base is in intron 1 of the gene, is thymine.

13. (currently amended) The gene detection method according to claim 1 ~~any of claims 1 through 12~~, wherein said gene polymorphism ~~(l)12~~ (k)12 is specified such that the position 12,359 polymorphic base of the interleukin 12•p40 subunit gene, which base is in intron 4 of the gene, is guanine.

14. (currently amended) The gene detection method according to claim 1 ~~any of claims 1 through 13~~, wherein said gene polymorphism ~~(m)13~~ (l)13 is specified such that the position 16,078 polymorphic base of the interleukin 12•p40 subunit gene, which base is in intron 6 of the gene, is thymine.

15. (currently amended) The gene detection method according to claim 1 ~~any of claims 1 through 14~~, wherein, in the case of detection of a gene polymorphism in introns of the interleukin 12•p40 subunit gene, a polymorphism of the position 3,696 base or position 3,757 base is detected in intron 1 of the gene.

16. (currently amended) The gene detection method according to claim 1 ~~any of claims 1 through 15~~, wherein, in the case of detection of a gene polymorphism in introns of the interleukin 12•p40 subunit gene, a polymorphism of the position 12,359 base is detected in intron 4 of the gene, or a polymorphism of the position 16,078 base is detected in intron 6 of the gene.

17. (currently amended) The gene detection method according to claim 1 ~~any of claims 1 through 16~~, which employs the Invader assay for detecting a gene polymorphism.

18. (currently amended) A gene detection kit comprising an element for detecting one or more gene polymorphisms selected from the group consisting of the below-described gene polymorphisms (a)1 through (m)13:

(a)1: a polymorphism of an interleukin 12 receptor β 2 chain gene specified by mutation of a region encoding position 313 arginine of an interleukin 12 receptor β 2 chain protein encoded by the gene;

(b)2: a polymorphism of an interleukin 12 receptor β 2 chain gene specified by mutation of a region encoding position 604 alanine of an interleukin 12 receptor β 2 chain protein encoded by the gene;

(c)3: a polymorphism of an interleukin 12 receptor β 2 chain gene specified by lack of a region encoding position 619 glycine and subsequent amino acid residues of an interleukin 12 receptor β 2 chain protein encoded by the gene;

(d)~~[[4.]]~~ a polymorphism of an interleukin 12 receptor β 2 chain gene specified by mutation of a region encoding position 720 histidine of an interleukin 12 receptor β 2 chain protein encoded by the gene;

(e)~~5~~: a polymorphism of an interleukin 12 receptor β 1 chain gene specified by mutation of a region encoding position 361 arginine of an interleukin 12 receptor β 1 chain protein encoded by the gene;

(f)~~6~~: a polymorphism of an interleukin 12 receptor β 1 chain gene specified by mutation of a region encoding position 365 methionine of an interleukin 12 receptor β 1 chain protein encoded by the gene;

(g)~~7~~: a polymorphism of an interleukin 12 receptor β 1 chain gene specified by mutation of a region encoding position 378 glycine of an interleukin 12 receptor β 1 chain protein encoded by the gene;

(h)~~8~~: a polymorphism of an interleukin 18 receptor α chain gene specified by lack of position 317 alanine of an interleukin 18 receptor α chain protein encoded by the gene;

(i)~~9~~: a polymorphism of an interferon γ receptor 1 chain gene specified by mutation of a region encoding position 467 leucine of an interferon γ receptor 1 chain protein encoded by the gene;

(j)~~10~~: a polymorphism of an interleukin 12•p40 subunit gene specified by substitution of position 3,696 guanine by another base, the guanine being in intron 1 of the gene;

(k)~~11~~: a polymorphism of an interleukin 12•p40 subunit gene specified by substitution of position 3,757 cytosine by another base, the cytosine being in intron 1 of the gene;

~~(l)12~~: a polymorphism of an interleukin 12•p40 subunit gene specified by substitution of position 12,359 thymine by another base, the thymine being in intron 4 of the gene; and

~~(m)13~~: a polymorphism of an interleukin 12•p40 subunit gene specified by substitution of position 16,078 cytosine by another base, the cytosine being in intron 6 of the gene.

19. (original) The gene detection kit according to claim 18, which employs the Invader assay for detecting a gene polymorphism.